

What is Claimed is:

[1] An orthopedic implant flexible intramedullary nail comprising:
a straight flexible nail of universal length being adapted in use for insertion into medullary canal of bones for repositioning and fixing fragments of bones having ductility of at least 15% of elongation of nail on tensile stress and at least 600 Mega Pascal ultimate tensile strength and made from stainless steel material having identical two ends and shaft where ends are having identical blunt conical pathfinder tip and said shaft and said ends are having flexibility such that it can be bowed to any angle or curvature to adapt medullary canal and maintain relation of fragments of bones having multiple contact points of fixation.

[2] An orthopedic implant flexible nail of claim 1 wherein said flexible nail is characterized having mechanical property of ductility as percentage of elongation of at least 15% on tensile stress and at the same time having ultimate tensile strength of at least of 600 Mega Pascal.

[3] An orthopedic implant flexible nail of claim 1 wherein said flexible nail is characterized having made from material comprising one of 316 L (low carbon) or 316 LVM (low carbon vacuum melted) stainless steel or other biocompatible material.

[4] An orthopedic implant flexible nail of claim 1, wherein said flexible nail is characterized having two identical said ends where said ends are having said blunt conical pathfinder tip for better gliding in said medullary canal.

[5] An orthopedic implant intramedullary flexible nail assembly being adapted in use for insertion into medullary canal of long bones comprising:
plurality of flexible intramedullary nails wherein each of said intramedullary nails comprising a straight flexible nail of universal length being adapted in use for insertion into intramedullary canal of long bones for repositioning and fixing

fragments of bones having identical two ends and shaft where ends are having identical blunt conical pathfinder tip and said shaft and said ends are having flexibility such that it can be bowed to any angle or curvature to adapt medullary canal and maintain relation of fragments of long bones having multiple contact points of fixation wherein said flexible nail is characterized having mechanical property of ductility as percentage of elongation of at least 15% on tensile stress and at the same time having ultimate tensile strength of at least of 600 Mega Pascal and made from material comprising one of 316 L(low carbon) or 316 LVM (low carbon vacuum melted) stainless steel or other biocompatible material; and

proximal fixation device comprising intramedullary rod having shaft part with plurality of longitudinal grooves spaced around the periphery of the said rod, the said rod having head portion with internal threads adaptable to an end cap and temporarily adaptable to suitable targeting device, said rod is tapering to a blunt point at the distal end;

wherein said end cap comprising head part with plurality of holes to retain hooked cut ends of said flexible nails and shaft part adaptable to said internally threaded part of said proximal fixation device.

[6] An orthopedic implant assembly of claim 5 wherein said shaft of said proximal fixation device has a plurality of holes for interlocking screws wherein said holes are placed in either transverse direction or an angled direction to long axis of said shaft part of said proximal fixation device to receive said interlocking screws.

[7] An orthopedic implant assembly of claim 5, wherein said proximal fixation device is characterized having said intramedullary rod having plurality of said longitudinal grooves wherein said grooves being deep less than diameter of one said flexible nail and said grooves equally spaced around the periphery of said rod for holding said flexible nails apart from one another.

[8] An orthopedic implant assembly of claim 5, wherein said proximal fixation device is characterized having said intramedullary rod and an end cap wherein said rod and said end cap are made from material comprising one of 316 L (low carbon) or 316 LVM (low carbon vacuum melted) stainless steel or other biocompatible material.

[9] An orthopedic implant assembly of claim 5, wherein said proximal fixation device is characterized having said intramedullary rod wherein said rod is having distal end tapering to a blunt point for easy insertion into medullary canal.

[10] An orthopedic implant assembly of claim 5, wherein said end cap is characterized having head part with plurality of holes to retain hooked cut ends of said flexible nails and shaft part having external threads to have final attachment with said internally threaded part of said proximal fixation device to have proximal anchor of plural said flexible nails to add stability.

[11] A plier-knurler cum cutter to be used with said flexible nails to hold, to cut and to make surface rough of cut ends of said flexible nail comprising:

jaws having knurler part -surface with nose, cutting part and handles wherein pressing said handle part said cutting part cut said flexible nail at the distance substantially equal to 1 centimeter when nose part is touching the entry point on surface of bone where said jaws are holding said flexible nail and said knurling part-surface makes surface rough of cut ends of said flexible nail to have easy removal later on at the same time keeping protruding out substantially equal to 1cm of cut end of said flexible nail to prevent soft tissue irritation.

[12]An article of manufacture used to treat bones fractured into a plurality of fragments, where said bone is having a medullary canal, said article of manufacture comprising:

a fixation device positioned at least partially in said medullary canal and designed to guide insertion of a said flexible nail into said medullary canal covering said plurality of fragments, said fixation device also designed to hold said flexible nail in said medullary canal while said fragments heal to form said bone, wherein said fixation device comprises an intramedullary rod having a shaft part with a plurality of longitudinal grooves, with each groove being deep less than a diameter of each of said flexible nails and spaced around the periphery of the said rod.

[13]. The article of manufacture of claim 12, wherein said rod has a head portion adaptable to an end cap and temporarily adaptable to suitable targeting device, said rod is tapering to a blunt point at the distal end; and said end cap comprising a head part with plurality of holes to retain hooked cut ends of said flexible nails and shaft part adaptable to have final attachment with said head portion of said proximal fixation device .

[14] The article of manufacture of claim 12, wherein said shaft has plurality of holes for interlocking screws wherein said holes are placed in either transverse direction or an angled direction to long axis of said shaft part of said proximal fixation device to receive said interlocking screws.

[15] The article of manufacture of claim 12, wherein said intramedullary rod and said end cap are made from biocompatible material.

[16] A method of treating a bone having medullary canal fractured into a plurality of fragments using at least one flexible nail having a conical blunt pathfinder tip and providing means for removal of said flexible nail without irritating soft tissue comprising:

making an entry in bone leading to said medullary canal of said bone;and pushing said flexible nail of universal length via said entry point into said medullary canal irrespective to shape of said medullary canal, wherein said conical blunt pathfinder tip glides in medullary canal and said flexible nail is sufficiently flexible to reach contact points of fixation of said fragments by said pushing.

[17] The method of treating a bone of claim 16, further comprising: after final pushing non leading end is cut substantially keeping 1 cm or less outside said entry point to prevent soft tissue irritation and surface of cut end of said flexible nail is roughened to have grip for removal of said flexible nail later on.